



# USPS Pricing Engine

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*.NET Software Development Kit (SDK)*

Guide to help developers integrate the Pricing Engine SDK into their applications.

*3/24/2021*

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# USPS Pricing Engine

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**.NET Software Development Kit Overview**

This software development kit (SDK) is intended to provide software and Internet developers with the ability to integrate postage rate information into programs and/or web sites.

**Licenses and Liability**

The information and components contained within this SDK may be distributed only to individuals who have signed the USPS User License and may only be used in accordance with the terms of the USPS User License. The USPS assumes no liability for the incorrect implementation of this SDK once it has been incorporated into a client product. The USPS will supply upgrades to the data and/or the objects when needed, but it assumes no part in distribution of these upgrades once the engine has been integrated into client products.

**Purpose**

This document will explain the Domestic and International Pricing Engine .NET Interface.

**Contact Information**

**For Technical Support, contact:**

Email: [RCalcPEPMOSupport@usps.gov](mailto:RCalcPEPMOSupport@usps.gov)

**For USPS Support, contact USPS:**

Email: [PostalExplorer@usps.com](mailto:PostalExplorer@usps.com)

# Application Programming Interface (API)

## Overview

The Pricing Engine is built using the Model, View, Controller (MVC) design pattern and should be used as a black box. All of the Pricing Engine behavior is provide by making calls to methods that are part of a single interface class named PostOffice.

## Working IDs

The Pricing Engine does not enumerate the ID. This was done to allow for greater flexibility. As new services are added the ID of that service only needs to be known to the service itself. The user of the Pricing Engine should not hard code any IDs into their application because services and IDs may change over time. To get the ID of a service, the developer should request the services by specifying to know mail properties and then use the ID of the desired service from the results returned.

## Configuration File

To use the .NET SDK, the developer is responsible for creating a configuration file for the application; web.config for web applications and app.config for windows applications. These configuration files must include the following:

## Domestic Pricing Engine SDK

### *Defines the endpoint binding for the Service Delivery Calculator (SDC)*

```
<system.serviceModel>
  <bindings>
    <basicHttpBinding>
      <binding name="serviceDeliveryCalculatorSoap11"
        maxReceivedMessageSize="2147483647"
        maxBufferPoolSize="2147483647">
        <readerQuotas maxArrayLength="2147483647"
          maxStringContentLength="2147483647"/>
        <security mode="Transport">
          <transport clientCredentialType="Certificate" />
        </security>
      </binding>
    </basicHttpBinding>
  </bindings>
  <behaviors>
    <endpointBehaviors>
      <behavior name="endpointCredentialBehavior">
        <clientCredentials>
          <clientCertificate
            storeLocation="LocalMachine"
            storeName="Root"
            x509FindType="FindByThumbprint"
            findValue="8858d68f41053dff6da7a1921c5a4a222f5536f8" />
          </clientCredentials>
        </behavior>
      </endpointBehaviors>
    </behaviors>
    <client>
      <endpoint
```



```

        address=
            "https://sdc1.usps.gov/sdc-services/services/serviceDeliveryCalculator"
        behaviorConfiguration="endpointCredentialBehavior"
        binding="basicHttpBinding"
        bindingConfiguration="serviceDeliveryCalculatorSoap11"
        contract="Domestic.SDC.SDC2Ref.serviceDeliveryCalculator"
        name="serviceDeliveryCalculatorSoap11" />
    </client>
</system.serviceModel>

```

*Note: the “endpoint address” needs to be the URL for the SDC webservice.*

### ***Defines the database connection string***

The database versions configuration element supports the ability to reference different versions of the calculator. The implementation supports a capability to pre-deploy a price change and automatically execute it on the date defined by the “startDate” attribute.

The startDate attribute works in conjunction with the mail properties shippingDate to delineate the database to use. The calculator will default to Now, today’s date, in the absence of a user specified shipping date.

The connection version is used to specify the connection string in the connectionStrings XML node. You can see the version in the connection name, e.g. Domestic.Business.R1701. The engine will determine what connection version to use based upon the start date. Then it will iterate over the connection names to find that version.

The connection version “NAN” is the default connection string. It will be used in the absence of a data source version.

```

<datasourceVersions>
    <add startDate="1/22/2017" connectionVersion="R1701" />
    <add startDate="1/17/2018" connectionVersion="R1801" />
</datasourceVersions>

<connectionStrings>
    <add
        name="Domestic.Business.NAN"
        connectionString="Data Source=SQLSERVICE;Initial Catalog=USPS_DOM_2017_01;Integrated Security=True"
        providerName="RateEngine.Data.SQLDataSource"/>
    <add
        name="Domestic.Business.R1701"
        connectionString="Data Source=SQLSERVICE;Initial Catalog=USPS_DOM_2017_01;Integrated Security=True"
        providerName="RateEngine.Data.SQLDataSource"/>
    <add
        name="Domestic.Business.R1701"
        connectionString="Data Source=SQLSERVICE;Initial Catalog=USPS_DOM_2017_01;Integrated Security=True"
        providerName="RateEngine.Data.SQLDataSource"/>
</connectionStrings>

```

#### **name**

The Pricing Engine looks for a connection string named “Domestic.Business.<connectionVersion>”.

#### **connectionString**

Used to connect to the database.

## providerName

The Pricing Engine uses this value to know underlying data source. Currently the valid values are:

- RateEngine.Data.SQLDataSource – Microsoft SQL Server database
- RateEngine.Data.AccessDataSource – Microsoft Access database

## *Defines the Application settings*

```
<appSettings>
  <add key="ServiceDeliveryCalculator.Available" value="true"/>
  <add key="ServiceDeliveryCalculator.Provider" value="SDC2"/>
  <add key="ServiceDeliveryCalculator.Available.International" value="true"/>
  <add key="ServiceDeliveryCalculator.Provider.International" value="GCW"/>
</appSettings>
```

NOTE: Valid values include KPG and GCW. KPG will tell the engine to use the old Kahala interface. GCW will tell the engine to use the new SDC GCWrapper interface.

## International Pricing Engine SDK

### *Defines the endpoint binding for the Kalaha (KPG) and the GCWrapper (GCW)*

```
<system.serviceModel>
  <bindings>
    <basicHttpBinding>
      <!-- Kahala Standard version -->
      <binding name="SOAPInterfaceSoapBinding" maxReceivedMessageSize="2147483647"
maxBufferPoolSize="2147483647" >
        <readerQuotas maxArrayLength="2147483647"
maxStringContentLength="2147483647" />
        <security mode="Transport">
          <transport clientCredentialType="Certificate" />
        </security>
      </binding>

      <!-- Kahala GCWrapper version -->
      <binding name="GCWrapperSOAPInterfaceBinding" maxReceivedMessageSize="2147483647"
maxBufferPoolSize="2147483647">
        <readerQuotas maxArrayLength="2147483647" maxStringContentLength="2147483647" />
        <security mode="Transport">
          <transport clientCredentialType="Certificate"/>
        </security>
      </binding>
    </basicHttpBinding>
  </bindings>
  <behaviors>
    <endpointBehaviors>
      <!-- Kalaha Standard version -->
      <behavior name="endpointCredentialBehavior">
        <clientCredentials>
          <clientCertificate
            storeLocation="LocalMachine"
            storeName="Root"
            x509FindType="FindByThumbprint"
            findValue="XXXXX" />
        </clientCredentials>
      </behavior>

      <!-- Kalaha GCW version -->
      <behavior name="endpointCredentialBehaviorGCW">
```

```

        <clientCredentials>
            <clientCertificate
                storeLocation="LocalMachine"
                storeName="Root"
                x509FindType="FindByThumbprint"
                findValue="XXXXX" />
            </clientCredentials>
        </behavior>
    </endpointBehaviors>
</behaviors>
<client>
    <!-- Kahala Standard version -->
    <endpoint
        address="https://lkahala-cat.usps.com/SoapInterfaceWebModule/services/SoapInterface"
        behaviorConfiguration="endpointCredentialBehavior"
        binding="basicHttpBinding"
        bindingConfiguration="SoapInterfaceSoapBinding"
        contract="International.KPG.ServiceRef.SoupInterface"
        name="SoapInterface" />

    <!-- Kahala GCWrapper version -->
    <endpoint address="https://sdc1-cat.usps.gov/sdc-services/services/sdcInternationalPassthrough"
        behaviorConfiguration="endpointCredentialBehaviorGCW"
        binding="basicHttpBinding"
        bindingConfiguration="GCWrapperSoapInterfaceBinding"
        contract="International.KPG.GCWrapper.GCWrapperSoapInterface_SEI"
        name="GCWrapperSoapInterface" />
    </client>
</system.serviceModel>

```

*Note:*

1. The *findValue* property of the *X509Findtype* is not *XXXXX*. We are not publishing the value.
2. The “endpoint address” needs to be the URL for the KPG or SDC GCWrapper webservice.

### ***Defines the EndPoint binding for International Mail Console (aka IDG-M, UPUXIT)***

The following application configuration items must be defined to support the integration of the IMC with the International Pricing Engine.

```

<add key="IMC.Provider" value="SDC"/>
<add key="IMC.Available" value="True"/>
<add key="IMC.DateTimeAvailable" value="1/24/2021"/>
<add key="IMC.URL" value="https://eagmnmbd281.usps.gov:9443/idgm-reporter/supportedCountries"/>

```

The important element here is the IMC.URL. The IMC.URL maintains the IMC endpoint. Consult with the SDC team for the proper endpoint address for your environment.

### ***Defines the database connection***

```

<connectionStrings>
    <add
        name="International.Business"
        connectionString="Data Source=(LOCAL);Initial Catalog=USPS_INTL_2015;Integrated
            Security=True" providerName="RateEngine.Data.SqlDataSource"/>
    </connectionStrings>

```

### ***Defines the Application settings***

```

<appSettings>
    <add key="ExpressMailGuaranteedWS.Enabled" value="true"/>

```

</appSettings>

## Domestic Pricing Engine Interface

The following operations are defined for the Domestic Pricing Engine. See “Pricing Engine Design Model.pdf” for details.

### PostOffice Class

Namespace

ManTech.Usps.RateEngine.Domestic.Business

#### *CalculateServicePrice Method*

Description

This method is used to calculate the total cost of a selected mail service and any selected extra services.

Syntax

CalculateServicePrice(in request : CalculationRequest) : CalculatedPricing

#### *GetExtraServicesWithPricing Method*

Description

This method is used to get a specified list of extra service with the price of each.

Syntax

GetExtraServicesWithPricing(in extraServicesRequest: ExtraServicesRequest) : ExtraServicesWithPricing

#### *GetLocations Method*

Description

This method is used to get locations by specifying a list of ZIP Codes. The similar method with the shippingDateTime input parameter changes the behavior to produce results available as of the date specified.

Syntax

GetLocations(in zipCodes : ZipCodeCollection) : LocationCollection

GetLocations(in zipCodes : ZipCodeCollection, in shippingDateTime : DateTime) : LocationCollection

#### *GetMailingRestrictions Method*

Description

This method is used to get the mailing restrictions for a specified ZIP Code or collection of ZIP Codes. The similar method with the shippingDateTime input parameter changes the behavior to produce results available as of the date specified.

### Syntax

GetMailingRestrictions(in zipCodes : ZipCodeCollection) : MailingRestrictionCollection

GetMailingRestrictions(in zipcodes : ZipCodeCollection, in shippingDateTime : DateTime) :  
MailingRestrictionCollection

### *GetPriceBySKU Method*

#### Description

This method is used to get a collection of Prices for a specified SKU. The requested SKU can be a full 15 digit SKU or a partial SKU. The requested SKU can also contain wildcard characters "%". The result collection will contain all prices that match the requested SKU. Each node in the collection contains the SKU, Price, Postage Statement Section and Postage Statement Line.

### Syntax

GetPriceBySKU(in priceBySKURequest : SKURequest) : SKUPriceCollection

### *GetServiceCommitments Method*

#### Description

This method is used to get the mailing service commitments for the specified request. The caller is required to specify the following:

- Origin ZIP Code
- Destination ZIP Code
- Shipping date/time
- Mail shape and size

### Syntax

GetServiceCommitments(in servicesRequest : ServicesRequest) : ServiceCommitmentCollection

GetServiceCommitments(in servicesRequest : ServicesRequest , LocationCollection locations) :  
ServiceCommitmentCollection

### *GetServiceWithPricing Method*

#### Description

This method is used to get a list of mailing services with associated extra services for the specified mail piece attributes.

### Syntax

GetServiceWithPricing(in request : ServiceRequest) : ServiceWithPricing

GetServiceWithPricing(in request : ServiceRequest, in serviceContainerAttributes :  
ServiceContainerAttributes) : ServiceWithPricing

### *GetMailingFees Method*

#### Description

The method is used to get the Mailing Fee for a specified key.

#### Syntax

GetMailingFees(in mailingFeeRequest : MailingFeeRequest) : MailingFee

### *GetZone Method*

#### Description

The method is used to get the zone information between origination and destination ZIP codes. The similar method with the shippingDateTime input parameter changes the behavior to produce results available as of the date specified.

#### Syntax

GetZone(in originZIPCode : ZipCode, in destinationZIPCode: ZipCode) : Zone

GetZone(in originZIPCode : ZipCode, in destinationZIPCode: ZipCode, in shippingDateTime : DateTime) : Zone

### *GetZones Method*

#### Description

The method is used to get the zone information for a 3-digit ZIP Code. When the ZIP Code collection contains more than a single 3-digit ZIP Code, zone information is returned to each ZIP Code passed. The similar method with the shippingDateTime input parameter changes the behavior to produce results available as of the date specified.

#### Syntax

GetZones(in zipCodes : ZipCodeCollection) : ZoneCollection

GetZones(in zipCodes : ZipCodeCollection, in shippingDateTime : DateTime) : ZoneCollection

### *Validate Method*

#### Description

This method is used to validate the specified mail properties. The method will return origin and destination location objects.

#### Syntax

Validate(in servicesRequest : ServicesRequest) : LocationCollection

---

## CalculationRequest Class

### Namespace

ManTech.Uspz.RateEngine.Domestic.Business.Entity

### Base Class

ServicesRequest

### Properties

Selections : CalculationSelections

IsExtraServiceConversational : bool

---

## CalculatedPricing Class

### Namespace

ManTech.Uspz.RateEngine.Domestic.Business.Entity

### Base Class

None

### Properties

Geography : Geography

Commitments : ServiceCommitmentCollection

Restrictions : MailingRestrictionCollection

Service : PostageService

Annotations : AnnotationCollection

Totals : PostagePriceCollection

Effective: DateTime

---

## CalculationSelections Class

### Namespace

ManTech.Uspz.RateEngine.Domestic.Business.Entity

### Base Class

None

### Properties

MailServiceID : MailServiceID

DeliveryOptionKey : string

ExtraServices : ExtraServiceIDCollection

---

## ExtraServicesRequest Class

### Namespace

ManTech.Usp.RateEngine.Domestic.Business.Entity

### Base Class

None

### Properties

IDCard : IDCard

Weight : Weight

ExcludeSections : ResultSectionCollection

MailServiceID : MailServiceID

ExtraServices: ExtraServiceIDCollection

ExtraServiceParameters : AdditionalInputValueCollection

ShippingDateTime : DateTime

---

## ExtraServicesWithPricing Class

### Namespace

ManTech.Usp.RateEngine.Domestic.Business.Entity

### Base Class

None

### Properties

ExtraServices : ExtraPostageServiceCollection

Annotations : AnnotationCollection

Effective: DateTime

---

## Geography Class

### Namespace

ManTech.Usp.RateEngine.Domestic.Entity

### Base Class

None

### Properties

DestinationCity : string

DestinationState : string

DestinationIsAPO : bool

OriginCity : string

OriginState : string

OriginIsAPO : bool

Zone : int



IsLocal : bool  
CommonNDC : bool

---

### **MailingFee Class**

Namespace  
ManTech.Usps.RateEngine.Business.Entity

Base Class  
None

Properties  
Cost : decimal  
FeeKey : string  
Price : decimal  
ValueKey : string  
ValueKeyLowerLimit : decimal  
ValueKeyUpperLimit : decimal  
Effective: DateTime

---

### **MailingFeeCollection Class**

Namespace  
ManTech.Usps.RateEngine.Business.Entity

Base Class  
List<MailingFee >

Properties  
None

---

### **MailingFeeRequest Class**

Namespace  
ManTech.Usps.RateEngine.Business.Entity

Base Class  
None

Properties  
IDCard : IDCard  
FeeKeys : FeeKeyCollection  
QueryValue : decimal  
ShippingDateTime: DateTime

---

## **MailingFeeRequest .FeeKey Class**

### Namespace

ManTech.Uspz.RateEngine.Business.Entity

### Base Class

None

### Properties

Value : string

---

## **MailingFeeRequest .FeeKeyCollection Class**

### Namespace

ManTech.Uspz.RateEngine.Business.Entity

### Base Class

List<MailingFeeRequest .FeeKey>

### Properties

None

---

## **MailPieceAttributes Class**

### Namespace

ManTech.Uspz.RateEngine.Domestic.Business.Entity

### Base Class

None

### Properties

Origin : LocationAttributes

Destination : LocationAttributes

ShippingDateTime : DateTime

Dimensions : Dimensions

Weight : Weight

MailShapeAndSizes : MailShapeAndSizeCollection

MailPieceContents : MailPieceContentCollection

MailEntryPoint : DestinationEntry.EntryValue

Sortation : string

### DestinationEntry.EntryValue Enumerator

None

DNDC

DSCF

DDU

DFSS

---

### **MailPieceAttributes.LocationAttributes Class**

Namespace

ManTech.Uspz.RateEngine.Domestic.Business.Entity

Base Class

None

Properties

ZIP : ZipCode

IsPOBox : bool

---

### **MailPieceContent Class**

Namespace

ManTech.Uspz.RateEngine.Entity

Base Class

None

Properties

Key : string

---

### **MailPieceContentCollection Class**

Namespace

ManTech.Uspz.RateEngine.Entity

Base Class

List<MailPieceContent>

Properties

None

---

### **ServicesRequest Class**

Namespace

ManTech.Uspz.RateEngine.Domestic.Business.Entity

Base Class

None

### Properties

IDCard : IDCard

MailPieceAttributes : MailPieceAttributes

ExcludeSections : ResultSectionCollection

ExtraServiceParameters : AdditionalInputValueCollection

---

### ServiceWithPricing Class

#### Namespace

ManTech.Usps.RateEngine.Domestic.Business.Entity

#### Base Class

None

### Properties

Geography : Geography

Commitments : ServiceCommitmentCollection

Restrictions : MailingRestrictionCollection

Services : PostageServiceCollection

Annotations : AnnotationCollection

Effective: DateTime

---

### SKURequest Class

#### Namespace

ManTech.Usps.RateEngine.Business.Entity

#### Base Class

None

### Properties

IDCard : IDCard

SKU : string

ShippingDateTime : DateTime

---

### SKUPrice Class

#### Namespace

ManTech.Usps.RateEngine.Business.Entity

#### Base Class

None

### Properties

SKU : string

Price : decimal  
PostageStatementSection : string  
PostageStatementLine : int

---

### **SKUPriceCollection Class**

#### Namespace

ManTech.Usps.RateEngine.Business.Entity

#### Base Class

List <SKUPrice>

#### Properties

N/A

## International Pricing Engine Interface

The following operations are defined for the International Pricing Engine. See “Pricing Engine Design Model.pdf” for details.

### PostOffice Class

#### Namespace

ManTech.Usps.RateEngine.International.Business

### *CalculateServicePrice*

#### Description

This method is used to calculate the total cost of a selected mail service and any selected extra services.

#### Syntax

CalculateServicePrice(in request : CalculationRequest) : CalculatedPricing

### *GetCountries*

#### Description

This method is used to get the collection of countries. The similar methods with the shippingDate input parameter changes the behavior to produce results available as of the date specified.

#### Syntax

GetCountries() : CountryCollection

GetCountries(in shippingDate : DateTime) : CountryCollection

GetCountries(in clientType : MailProperties.ClientType) : CountryCollection

***GetCountries(in clientType : MailProperties.ClientType, in shippingDate : DateTime) : CountryCollection***  
***GetCountryInformation***

#### Description

This method is used to get the Country Information for a specific country. This includes the country price group, prices and other guidelines. The similar methods with the shippingDate input parameter changes the behavior to produce results available as of the date specified.

#### Syntax

GetCountryInformation(in country : Country, in calculatorID : CalculatorID) : CountryInformation

GetCountryInformation(in country : Country) : CountryInformation

GetCountryInformation(in country : Country, in shippingDate : DateTime) : CountryInformation

### *GetCountryRegulations*

#### Description

This method is used to get the collection of Regulations for a specific country. The similar methods with the shippingDate input parameter changes the behavior to produce results available as of the date specified.

#### Syntax

GetCountryRegulations(in country : Country) : CountryRegulationCollection

GetCountryRegulations(in country : Country, in shippingDate : DateTime) : CountryRegulationCollection

GetCountryRegulations(in country : Country, in clientType : MailProperties.ClientType) :  
CountryRegulationCollection

GetCountryRegulations(in country : Country, in clientType : MailProperties.ClientType, in shippingDate :  
DateTime) : CountryRegulationCollection

### *GetExtraServicesWithPricing*

#### Description

This method is used to get a specified list of extra service with the price of each.

#### Syntax

GetExtraServicesWithPricing (in extraServicesRequest : ExtraServicesRequest) : ExtraServicesWithPricing

### *GetServicesWithPricing*

#### Description

This method is used to get a list of mailing services with associated extra services for the specified mail piece attributes.

#### Syntax

GetServicesWithPricing(in servicesRequest : ServicesRequest) : ServicesWithPricing

### *GetMailingFees Method*

#### Description

The method is used to get the Mailing Fee for a specified key. The Mailing Fee Request can contain a list of keys or a single key path with dots "." delimiters. If the full key path is not specified the result will be in the form of a tree with the end of each branch containing the price, cost, value key, and value limits. If the QueryValue is specified the results will be filtered using the value limits. If the value key of all the result mailing fee matches, the value is applied to calculate the Cost.

#### *Request Key Example:*

AddressCorrection.Electronic.FCM

or

AddressCorrection  
Electronic  
FCM

*Query Value Example:*

Request:

QueryValue = 10

FeeKey = "StampedEnvelopes.PlainStampedEnvelopes.Basic.10.Each"

Results:

Price = 0.13

Cost = 1.30

*Syntax*

GetMailingFees(in mailingFeeRequest : MailingFeeRequest) : MailingFee

*GetServiceCommitments Method*

*Description*

This method is used to retrieve service commitments (delivery dates) for the available mail services based upon the request parameters supplied.

*Syntax*

GetServiceCommitments(in request : RequestProperties, inout serviceCommitment : ServiceCommitmentCollection) : void

*GetServiceCommitmentsStatesOrProvinces*

*Description*

This method will return the states or provinces, within the specified country, supporting PMEI Guaranteed delivery.

*Syntax*

GetServiceCommitmentsStatesOrProvinces(in request : RequestProperties, inout expressMailGuaranteedItems : ExpressMailGuaranteedItemCollection) void

*GetServiceCommitmentCities*

*Description*

This method will return the cities, within state or province and the specified country, supporting PMEI Guaranteed delivery.

*Syntax*

GetServiceCommitmentsCities(in request : RequestProperties, inout expressMailGuaranteedItems : ExpressMailGuaranteedItemCollection) void



## *GetServiceCommitmentsPostalCodes*

### Description

This method will return the postal code, representing the state or province within the specified country, supporting PMEI.

### Syntax

GetServiceCommitmentsPostalCodes(in request : RequestProperties, inout expressMailGuaranteedItems : ExpressMailGuaranteedItemCollection) void

## *GetPriceBySKU Method*

### Description

This method is used to get a collection of Prices for a specified SKU. The requested SKU can be a full 15 digit SKU or a partial SKU. The requested SKU can also contain wildcard characters "%". The result collection will contain all prices that match the requested SKU. Each node in the collection contains the SKU, Price, Postage Statement Section and Postage Statement Line.

### Syntax

GetPriceBySKU(in priceBySKURequest : SKURequest) : SKUPriceCollection

## *Validate*

### Description

This method is used to validate the specified mail properties.

### Syntax

Validate(servicesRequest : ServicesRequest) : void

## *ValidateCountry*

### Description

This method is used to discover if a specified country is valid. The similar methods with the shippingDate input parameter changes the behavior to produce results available as of the date specified.

### Syntax

ValidateCountry(in countryID : CountryID) : void

ValidateCountry(in countryID : CountryID, in shippingDate : DateTime) : void

---

## **CalculatedPricing Class**

### Namespace

ManTech.Uspz.RateEngine.International.Business.Entity

Base Class

None

#### Properties

Geography : Geography

Commitments : ServiceCommitmentCollection

Service : PostageService

Annotations : AnnotationCollection

Totals : PostagePriceCollection

Regulations : CountryRegulation

GXGLocations : GXGLocationCollection

Effective : DateTime

---

### CalculationRequest Class

#### Namespace

ManTech.Usps.RateEngine.International.Business.Entity

#### Base Class

ServicesRequest

#### Properties

Selections : CalculationSelections

IsExtraServiceConversational : bool

---

### CalculationSelections Class

#### Namespace

ManTech.Usps.RateEngine.International.Business.Entity

#### Base Class

None

#### Properties

MailServiceID : MailServiceID

DeliveryOptionKey : string

ExtraServices : ExtraServiceIDCollection

---

### Geography Class

#### Namespace

ManTech.Usps.RateEngine.International.Business.Entity

#### Base Class

None

### Properties

ID : CountryID  
Name : string  
Code : string  
Number : string

---

### ExtraServicesRequest Class

#### Namespace

ManTech.Usps.RateEngine.International.Business.Entity

#### Base Class

None

### Properties

IDCard : IDCard  
Weight : Weight  
ExcludeSections : ResultSectionCollection  
MailServiceID : MailServiceID  
ExtraServices : ExtraServiceIDCollection  
ExtraServiceParameters : AdditionalInputValueCollection  
ShippingDateTime : DateTime

---

### ExtraServicesWithPricing Class

#### Namespace

ManTech.Usps.RateEngine.International.Business.Entity

#### Base Class

None

### Properties

ExtraServices : ExtraPostageServiceCollection  
Annotations : AnnotationCollection  
Effective: DateTime

---

### MailingFee Class

#### Namespace

ManTech.Usps.RateEngine.Business.Entity

#### Base Class

None

#### Properties

Cost : decimal  
FeeKey : string  
Price : decimal  
ValueKey : string  
ValueKeyLowerLimit : decimal  
ValueKeyUpperLimit : decimal  
Effective : DateTime

---

#### MailingFeeCollection Class

##### Namespace

ManTech.Usps.RateEngine.Business.Entity

##### Base Class

List<MailingFee >

#### Properties

None

---

#### MailingFeeRequest Class

##### Namespace

ManTech.Usps.RateEngine.Business.Entity

##### Base Class

None

#### Properties

IDCard : IDCard  
FeeKeys : FeeKeyCollection  
QueryValue : decimal  
ShippingDateTime: DateTime

---

#### MailingFeeRequest .FeeKey Class

##### Namespace

ManTech.Usps.RateEngine.Business.Entity

##### Base Class

None

#### Properties

Value : string

---

## **MailingFeeRequest .FeeKeyCollection Class**

### Namespace

ManTech.Usps.RateEngine.Business.Entity

### Base Class

List<MailingFeeRequest .FeeKey>

### Properties

None

---

## **MailPieceAttributes Class**

### Namespace

ManTech.Usps.RateEngine.International.Business.Entity

### Base Class

None

### Properties

Origin : LocationAttributes

Destination : LocationAttributes

ShippingDateTime : DateTime

Dimensions : Dimensions

Weight : Weight

MailShapeAndSizes : MailShapeAndSizeCollection

MailPieceContents : MailPieceContentCollection

---

## **MailPieceAttributes.LocationAttributes Class**

### Namespace

ManTech.Usps.RateEngine.International.Business.Entity

### Base Class

None

### Properties

CountryID : CountryID

CountryName : string

CountryCode : string

CountryNumber : string

PostalCode : string

IsPOBox : bool

---

## ServicesRequest Class

### Namespace

ManTech.Usps.RateEngine.International.Business.Entity

### Base Class

None

### Properties

IDCard : IDCard

MailPieceAttributes : MailPieceAttributes

ExcludeSections : ResultSectionCollection

ExtraServiceParameters : AdditionalInputValueCollection

---

## ServicesWithPricing Class

### Namespace

ManTech.Usps.RateEngine.International.Business.Entity

### Base Class

None

### Properties

Geography : Geography

Commitments : ServiceCommitmentCollection

Services : PostageServiceCollection

Regulations : CountryRegulation

GXGLocations : GXGLocationCollection

Annotations : AnnotationCollection

Errors : PricingEngineErrorCollection

Effective : DateTime

---

## SKURequest Class

### Namespace

ManTech.Usps.RateEngine.Business.Entity

### Base Class

None

### Properties

IDCard : IDCard

SKU : string

ShippingDateTime : DateTime

---

## SKUPrice Class

### Namespace

ManTech.Usp.RateEngine.Business.Entity

### Base Class

None

### Properties

SKU : string

Price : decimal

PostageStatementSection : string

PostageStatementLine : int

---

## SKUPriceCollection Class

### Namespace

ManTech.Usp.RateEngine.Business.Entity

### Base Class

List <SKUPrice>

### Properties

N/A

## Rate Engine Framework

### AdditionalInputValue

#### Namespace

ManTech.Usps.RateEngine.Entity

#### Base Class

None

#### Properties

TypeID : string

EnteredValue : decimal

---

### AdditionalInputValueCollection

#### Namespace

ManTech.Usps.RateEngine.Entity

#### Base Class

List<AdditionalInputValue>

#### Properties

None

---

### Annotation Class

#### Namespace

ManTech.Usps.RateEngine.Entity

#### Base Class

None

#### Properties

Text : string

Associations : AssociationCollection

---

### Annotation.AssociationCollection Class

#### Namespace

ManTech.Usps.RateEngine.Entity

#### Base Class

List<int>



## Properties

None

---

## AnnotationCollection Class

### Namespace

ManTech.Usps.RateEngine.Entity

### Base Class

List<Annotation>

## Properties

None

---

## Country Class

### Namespace

ManTech.Usps.RateEngine.International.Entity

### Base Class

None

## Properties

CountryID : CountryID

Name : string

NameParts : string[]

Code : string

CountryNumber : string

TypeOf : short

Status : CountryStatus

IsDisplayed : bool

ShowOnlinePrice : bool

MaxWeight : Weight

IsParent : bool

Aka : CountryAliasCollection

---

## Country.Status Enumerator

Unknown

Normal

NoOnlineService

ServiceSuspended

---

### CountryAlias Class

#### Namespace

ManTech.Usps.RateEngine.International.Entity

#### Base Class

None

#### Properties

Alias : string

---

### CountryAliasCollection Class

#### Namespace

ManTech.Usps.RateEngine.International.Entity

#### Base Class

List<CountryAlias>

#### Properties

None

---

### CountryCollection Class

#### Namespace

ManTech.Usps.RateEngine.International.Entity

#### Base Class

List<Country>

#### Properties

None

---

### CountryID Structure

#### Namespace

ManTech.Usps.RateEngine.International.Entity

#### Base Class

None

#### Properties

Value : int

---

## CountryInformation Class

### Namespace

ManTech.Usps.RateEngine.International.Entity

### Base Class

List<CountryInformationItem>

### Properties

None

---

## CountryInformationItem Class

### Namespace

ManTech.Usps.RateEngine.International.Entity

### Base Class

None

### Properties

CountryToMailService : CountryToMailService

CountryToExtraServices : CountryToExtraServiceCollection

Price : decimal

OnlinePrice : decimal

CommercialPlusPrice : decimal

---

## CountryRegulation Class

### Namespace

ManTech.Usps.RateEngine.International.Entity

### Base Class

None

### Properties

Country : Country

Prohibitions : string

Restrictions : string

Observations : string

CustomsForms : string

ExpressMailRegulations : string

ExpressMailNote : string

AdditionalRestrictions : string

---

## CountryRegulationCollection Class

### Namespace

ManTech.Usps.RateEngine.International.Entity

### Base Class

List<CountryRegulation>

### Properties

None

---

## CountryToMailService Class

### Namespace

ManTech.Usps.RateEngine.International.Entity

### Base Class

None

### Properties

ServiceTitle : string

MailServiceID : MailServiceID

IsAvailable : bool

WeightLimit : Weight

WeightLimitOperator : Weight.WeightOperator

weightMin : Weight

WeightMinOperator : Weight.WeightOperator

InsuranceMax : decimal

PriceGroups : PriceGroupCollection

EstimatedDeliveryTime : string

DimensionalRange : DimensionalRange

---

## CountryToExtraService Class

### Namespace

ManTech.Usps.RateEngine.International.Entity

### Base Class

None

### Properties

ServiceTitle : string

ExtraServiceID : ExtraServiceID

IsAvailable : bool

Price : decimal

OnlinePrice : decimal

---

## CountryToExtraServiceCollection Class

### Namespace

ManTech.Usps.RateEngine.International.Entity

### Base Class

List<CountryToExtraService>

### Properties

None

---

## Dimensions Class

### Namespace

ManTech.Usps.RateEngine.Entity

### Base Class

None

### Properties

Length : Dimension

Width : Dimension

Height : Dimension

Girth : Dimension

IsRectangular : bool

RoundDownToQuarterInch : bool

---

## DimensionalRange Class

### Namespace

ManTech.Usps.RateEngine.Entity

### Base Class

None

### Properties

MaxLength : Dimension

MaxWidth : Dimension

MaxHeight : Dimension

MaxLengthPlusGirth : Dimension

MaxLWH : Dimension

MinLength : Dimension

MinWidth : Dimension

MinHeight : Dimension

MinThickness : Dimension  
Text : string  
AdditionalSizes : DimensionalRangeCollection

---

### ExtraPostageService Class

Namespace  
ManTech.Usps.RateEngine.Entity

Base Class  
None

Properties  
ID : ExtraServiceID  
Name : string  
GroupCode : string  
Prices : PostagePriceCollection  
AdditionalFields : AdditionalInputCollection  
Attributes : PostageAttributeCollection

---

### ExtraPostageService.AdditionalInput Class

Namespace  
ManTech.Usps.RateEngine.Entity

Base Class  
None

Properties  
Key : string  
Min : decimal  
Max : decimal

---

### ExtraPostageService.AdditionalInputCollection Class

Namespace  
ManTech.Usps.RateEngine.Entity

Base Class  
List<ExtraPostageService. AdditionalInput >

Properties  
None

---

### ExtraPostageServiceCollection Class

#### Namespace

ManTech.Usps.RateEngine.Entity

#### Base Class

List<ExtraPostageService>

#### Properties

None

---

### ExtraServiceID Structure

#### Namespace

ManTech.Usps.RateEngine.Entity

#### Base Class

None

#### Properties

Value : int

---

### ExtraServiceIDCollection Class

#### Namespace

ManTech.Usps.RateEngine.Entity

#### Base Class

List<ExtraServiceID>

#### Properties

None

---

### GXGLocation Class

#### Namespace

ManTech.Usps.RateEngine.International.Entity

#### Base Class

None

#### Properties

LocationName : string

Street : string

City : string

State : string  
ZipCode ZipCode :  
WeekdayCutOff : string  
SaturdayCutOff : string

---

### **GXGLocationCollection Class**

#### Namespace

ManTech.Usps.RateEngine.International.Entity

#### Base Class

List<GXGLocation>

#### Properties

None

---

### **IDCard Class**

#### Namespace

ManTech.Usps.RateEngine.Entity

#### Base Class

None

#### Properties

CallerID : string  
SourceID : string  
CustomerType : string

---

### **Location Class**

#### Namespace

ManTech.Usps.RateEngine.Domestic.Entity

#### Base Class

None

#### Properties

ZipCode : ZipCode  
City : string  
State : string  
FinanceCode : string  
IsApo : bool  
ClassificationCode : string  
IsValid : bool



IsMailable : bool  
IsHoldForPickupAvailable : bool  
IsSundayHolidayAvailable : bool  
NonDeliveryDays : List<DayOfWeek>  
PremiumDays : List<DayOfWeek>  
LocationType : TypeOfLocation  
IsPOBox : bool

#### TypeOfLocation Enumerator

Origination  
Destination  
Neither

---

### LocationCollection Class

Namespace  
ManTech.Usps.RateEngine.Domestic.Entity

Base Class  
List<Location>

Properties  
None

---

### MailingRestriction Class

Namespace  
ManTech.Usps.RateEngine.Domestic.Entity

Base Class  
None

Properties  
ZipCode : ZipCode  
Restrictions : RestrictionCollection

---

### MailingRestriction.Restriction Class

Namespace  
ManTech.Usps.RateEngine.Domestic.Entity

Base Class  
None

#### Properties

Code : string

Description : string

---

### **MailingRestriction.RestrictionCollection Class**

#### Namespace

ManTech.Usps.RateEngine.Domestic.Entity

#### Base Class

List< MailingRestriction.Restriction>

#### Properties

None

---

### **MailingRestrictionCollection Class**

#### Namespace

ManTech.Usps.RateEngine.Domestic.Entity

#### Base Class

List<MailingRestriction>

#### Properties

None

---

### **MailServiceID Structure**

#### Namespace

ManTech.Usps.RateEngine.Entity

#### Base Class

None

#### Properties

Value : short

---

### **MailShapeAndSizeEnum Enumerator**

Unknown

Letter

LetterLarge

Package

Postcard

FlatRateBox

FlatRate  
ExpressMailServices  
PriorityMailServices  
FirstClassMailServices  
PostalServices  
FlatRateEnvelope

---

### **MailShapeAndSizeCollection Class**

Namespace  
ManTech.Usps.RateEngine.Entity

Base Class  
List<MailShapeAndSize>

Properties  
None

---

### **PostageAttribute**

Namespace  
ManTech.Usps.RateEngine.Entity

Base Class  
None

Properties  
Key : string  
Value : string

---

### **PostageAttributeCollection**

Namespace  
ManTech.Usps.RateEngine.Entity

Base Class  
List<PostageAttribute>

Properties  
None

---

### PriceDetail Class

#### Namespace

ManTech.Usps.RateEngine.Entity

#### Base Class

None

#### Properties

Key : string

Value : string

---

### PriceDetailCollection Class

#### Namespace

ManTech.Usps.RateEngine.Entity

#### Base Class

List<PriceDetail>

#### Properties

None

---

### PriceGroup Class

#### Namespace

ManTech.Usps.RateEngine.International.Entity

#### Base Class

None

#### Properties

Key : string

Value : string

---

### PriceGroupCollection Class

#### Namespace

ManTech.Usps.RateEngine.International.Entity

#### Base Class

List<PriceGroup>

#### Properties

None

---

## PostagePrice Class

### Namespace

ManTech.Usps.RateEngine.Entity

### Base Class

None

### Properties

Amount : decimal

Type : string

Details : PriceDetailCollection

---

## PostagePriceCollection Class

### Namespace

ManTech.Usps.RateEngine.Entity

### Base Class

List<PostagePrice>

### Properties

None

---

## PostageService Class

### Namespace

ManTech.Usps.RateEngine.Entity

### Base Class

None

### Properties

ID : MailServiceID

Name : string

DeliveryOptions : DeliveryOptionCollection

GroupCode : string

MaxWeight : Weight

MinWeight : Weight

DimensionalRange : DimensionalRange

ExtraServices : ExtraPostageServiceCollection

Attributes : PostageAttributeCollection

---

### PostageService.DeliveryOption Class

#### Namespace

ManTech.Usps.RateEngine.Entity

#### Base Class

None

#### Properties

Key : string

Commitment : string

Name : string

Prices : PostagePriceCollection

---

### PostageService.DeliveryOptionCollection Class

#### Namespace

ManTech.Usps.RateEngine.Entity

#### Base Class

List<PostageService.DeliveryOption>

#### Properties

None

---

### ResultSection Class

#### Namespace

ManTech.Usps.RateEngine.Entity

#### Base Class

None

#### Properties

Key : ResultSection.SectionType

---

### ResultSection.SectionType Enumerator

UnknownCountryRegulations

DimensionalRange

ExtraServices

Geography

GXGLocations

PriceDetails

Restrictions  
ServiceCommitments  
Annotations  
Breadcrumb  
RelatedLinks  
HelpLinks  
Notes  
Footnotes  
ServiceCommitmentCall

---

### **ResultSectionCollection Class**

Namespace  
ManTech.Usps.RateEngine.Entity

Base Class  
List<ResultSection>

Properties  
None

---

### **Weight Class**

Namespace  
ManTech.Usps.RateEngine.Entity

Base Class  
None

Properties  
Ounces : decimal  
Pounds : decimal  
Units : WeightUnit

---

### **Weight.WeightUnit Enumerator**

Unknown  
Ounces  
Pounds

---

### **ZipCode Structure**

Namespace  
ManTech.Usps.RateEngine.Domestic.Entity

Base Class

None

Properties

Value : string

---

### ZipCodeCollection Class

Namespace

ManTech.Usps.RateEngine.Domestic.Entity

Base Class

List<ZipCode>

Properties

None

---

### Zone Class

Namespace

ManTech.Usps.RateEngine.Domestic.Entity

Base Class

None

Properties

OriginZipCode : ZipCode

DestinationZipCode : ZipCode

ZoneCount : int

IsIntraBMC : bool

IsLocal : bool

Has5DigitZones : bool

Zone5DigitZones : Zone5DigitCollection

---

### Zone. Zone5Digit Class

Namespace

ManTech.Usps.RateEngine.Domestic.Entity

Base Class

None

Properties

OrigZIPFirst : ZipCode

OrigZIPLast : ZipCode



DestZIPFirst : ZipCode  
DestZIPLast : ZipCode  
ZoneCount : int

---

### **Zone. Zone5DigitCollection Class**

#### Namespace

ManTech.Usps.RateEngine.Domestic.Entity

#### Base Class

List<Zone. Zone5Digit>

#### Properties

None

---

### **ZoneCollection Class**

#### Namespace

ManTech.Usps.RateEngine.Domestic.Entity

#### Base Class

List<Zone>

#### Properties

None

## Service Delivery Extensions

### DOMESTIC\_NAMESPACE

#### OnlineServiceCommitment Class

##### Namespace

Usps.RateEngine.ServiceDeliveryExtensions.Domestic.Entity

##### Base Class

ServiceCommitment

##### Properties

EstimatedDeliveryTime : string

DeliveryDateTime : DateTime

IsHoliday : bool

CommitmentName ; string

CommitmentTime : string

CommitmentSequence : string

locations : ServiceCommitment.PostalLocationCollection

holdForPickupLocations : ServiceCommitment.PostalLocationCollection

---

#### ServiceCommitment Class

##### Namespace

Usps.RateEngine.ServiceDeliveryExtensions.Domestic.Entity

##### Base Class

None

##### Properties

ServiceCommitmentType : Type

Product : string

ErrorNumber : int

ErrorMessage : string

ServiceCommitmentGuarantee : Guarantee

UsedByMailService : MailServiceIDCollection

---

#### ServiceCommitment.Guarantee Enumerator

Unknown

NoGuarantee

MoneyBackGuarantee

LossOnlyGuarantee

---

## ServiceCommitment.Type Enumerator

Unknown = 0  
ExpressMail  
PriorityMail  
FirstClassMail  
StandardMail  
Periodicals  
PackageServices

---

## ServiceCommitment.PostalLocation Class

### Namespace

Usps.RateEngine.ServiceDeliveryExtensions.Domestic.Entity

### Base Class

None

### Properties

CutOff : string  
Facility : string  
FacilityID : string  
Street : string  
City : string  
State : string  
ZipCode : string  
ZipCode4 : string  
ScheduledDeliveryDate : DateTime  
closeTimes : string[]

---

## ServiceCommitment.PostalLocationCollection Class

### Namespace

Usps.RateEngine.ServiceDeliveryExtensions.Domestic.Entity

### Base Class

List<ServiceCommitment.PostalLocation>

### Properties

None

---

## ServiceCommitmentCollection Class

### Namespace

Usps.RateEngine.ServiceDeliveryExtensions.Domestic.Entity

Base Class  
List<ServiceCommitment>

Properties  
None

#### INTERNATIONAL\_NAMESPACE

### **ExpressMailGuaranteed Class**

Namespace  
Usps.RateEngine.ServiceDeliveryExtensions.International.Entity

Base Class  
ServiceCommitment

Properties  
None

---

### **ServiceCommitment Class**

Namespace  
Usps.RateEngine.ServiceDeliveryExtensions.International.Entity

Base Class  
None

Properties  
Type : ServiceCommitmentType  
ErrorNumber : int  
ErrorMessage : string  
DeliveryDate : string  
City : string  
StateOrProvince : string  
ShippingDate : DateTime  
ShippingTime : string  
UsedByMailService : MailServiceIDCollection

---

### **ServiceCommitmentCollection Class**

Namespace  
Usps.RateEngine.ServiceDeliveryExtensions.International.Entity

Base Class  
List<ServiceCommitment>

Properties  
None

## Customs Forms Engine

### *GetCustomsForms Method*

#### Description

This method returns the Customs Forms hierarchy tree for the specified properties.

#### Syntax

```
GetCustomsForms(in customsFormsMailProperties : CustomsFormsMailProperties) :  
CustomsFormCollection
```

### *GetCustomsFormsPage Method*

#### Description

This method returns the Customs Forms hierarchy tree, a list of available mail services and footnotes for the specified properties.

#### Syntax

```
GetCustomsFormsPage(in customsFormsMailProperties : CustomsFormsMailProperties) :  
CustomsFormsPage
```

### *GetCustomsFormsSubPage Method*

#### Description

This method returns the Customs Forms hierarchy tree and footnotes for the specified properties.

#### Syntax

```
GetCustomsFormsSubPage(in customsFormsMailProperties : CustomsFormsMailProperties) :  
CustomsFormsPage
```

### *Validate Method*

#### Description

This method returns True or False if a Customs Form is needed for the specified properties.

#### Syntax

```
Validate(in customsFormsMailProperties : CustomsFormsMailProperties) : void
```

---

## CustomsFormsCalculator Class

#### Namespace

ManTech.Usps.RateEngine.CustomsForms

#### Base Class

None

## CustomsFormCollection Class

### Namespace

ManTech.Usps.RateEngine.CustomsForms.Entity

### Base Class

List<CustomsForm>

### Properties

None

---

## CustomsForm Class

### Namespace

ManTech.Usps.RateEngine.CustomsForms.Entity

### Base Class

None

### Properties

FormName : TextWithLinks

Condition : TextWithLinks

Notes : TextWithLinks

ChildCustomsForms : CustomsFormCollection

---

## CustomsFormMailProperties Class

### Namespace

ManTech.Usps.RateEngine.CustomsForms.Entity

### Base Class

None

### Properties

IsDocument : bool?

IsPotentiallyDutiable : bool?

IsGreaterThan3\_4Thick : bool?

IsUniformlyThick : bool?

CountryID : CountryID

OriginZipCode : ZipCode

DestinationZipCode : ZipCode

IDCard : IDCard

ShippingDate : DateTime

---

## CustomsFormsPage Class

### Namespace

ManTech.Usps.RateEngine.CustomsForms.Entity

### Base Class

None

### Properties

MailServices : MailServiceCollection

Country : Country

CustomsFormsMailProperties : CustomsFormsMailProperties

AreZIPCodeRequired : bool

CustomsForms : CustomsFormCollection

Footnotes : TextWithLinksCollection



## Appendix

### Customer Type Codes

See “Client IDs and Customer Types.pdf” for complete details.

## Group Code Description

### Mail Service Group Codes

Index	Field Name	Code	Description
0	Service	D	Domestic
		I	International
1	Mail Type	E	Priority Mail Express
		P	Priority Mail
		Z	Priority Mail Critical Mail
		C	ECOMPRO
		F	First-Class Mail
		T	Standard Post
		M	Media
		L	Library
		B	Bound Printed Matter
		S	Standard Mail
		R	Parcel Return Service
		V	Parcel Select
		W	Parcel Select Lightweight
		O	PMOD
		D	EDDM
		G	GXG
		Q	ISAL
		A	Airmail
		Y	IPA
		X	Extra Service (see Extra Service Group Code table)
2	Sub Type	X	None
		F	Flat Rate
		R	Regional Rate
		A	Automation
		B	Nonautomation
		Q	AutomationDisc
		Y	NonautomationDisc
		M	Machinable
		N	Nonmachinable
		C	Carrier Route
		D	Carrier Route NonAutomation
		I	Irregular
		P	Presorted
		V	Nonpresorted
		U	Cubic
3	Shape	X	None
		B	Box
		E	Envelope
		C	Postcard
		L	Letter
		F	Flat or Large Envelope
		P	Parcel or Package
		M	M Bag
4	Shape Sub	0...	Shape sub version 0 to number of

5	Delivery Type	X	None
		S	Sunday/Holiday
		H	Hold For Pickup
6	Delivery Time	X	None
		A	AM
		P	PM

#### Extra Service Group Codes

Index	Field Name	Code	Description
0	Service	D	Domestic
		I	International
1	Type	X	Extra Service
2	Extra Service Type	X	None
		I	Insurance
		R	Return Receipt
		C	Collect on Delivery
		D	Certificate of Mailing
		E	Certified Mail
		T	USPS Tracking
		S	Signature Confirmation
		G	Registered Mail
		J	Restricted Delivery
		H	Special Handling
		A	Adult Signature Required
		B	Adult Signature Restricted Delivery
		M	10:30 Delivery
		L	Parcel Airlift
		Z	Sunday/Holiday Delivery
		K	Picture Permit Imprint
		U	USPS Delivery Confirmation
3	Associated Mail Type	X	None
		E	Priority Mail Express
		P	Priority Mail
		G	GXG
4	Variation	0...	Variation version 0 to number of
5	Sub Type	X	None
		E	Electronic
		M	for Merchandise
		A	After Mailing
6	Not currently used	X	None

## Attribute Keys

### Domestic

Key	Description
MailEntry	The Mail Entry type
Sort	The Sortation
DimensionalWeightR	The Dimensional Weight. Returned when the Dimensional Weight is used in the calculation of the Retail Price.
DimensionalWeightCB	The Dimensional Weight. Returned when the Dimensional Weight is used in the calculation of the Commercial Base Price.
DimensionalWeightCP	The Dimensional Weight. Returned when the Dimensional Weight is used in the calculation of the Commercial Plus Price.
DimensionalWeightNA	The Dimensional Weight. Returned when the Dimensional Weight is used in the calculation of the Price and the Price Type is Not Applicable.

### International

Key	Description
IncludedIndemnity	The included Insurance Indemnity for the mail service / weight.
DeclaredValueSDR	The value with the Special Drawing Right applied to the declare value.
InclInceNonnegotiableDoc	The Included Insurance amount when the mail piece contains only Nonnegotiable Document(s).
InclInceMerchandise	The Included Insurance amount when the mail piece contains Merchandise.
ECOMPRO	Set to True or False to indicate that Priority Mail International mail service is or is not ECOMPRO.
lp_type	Indicator if the block information is for a Logistics Partner or Post. See the Web Service UPUXIT SDC Spec
lp_code	The Logistics Partner code that will support international transportation.
lp_barcodetype	The barcode(s) that a Logistics Partner will support for international transportation. A commas delimited list of Barcodes. i.e. S10,W12

## Content Keys

### Domestic

Key	Description
LiveAnimals	The mail piece content is a Live Animal(s). Equivalent to Special Handling - Live Animal Transportation
DayOldPoultry	The mail piece content is a Live Animal(s) that is Day Old Poultry.
Hazmat	The mail piece content is Hazmet. Equivalent to Special Handling - Hazardous Material Transportation
GroundTransportation	The mail piece requires Ground Transportation.
Nonmachinable	The mail piece is Not Machinable.
CrematedRemains	The mail piece content is Cremated Remains Equivalent to Special Handling - Cremated Remains
Perishables	The mail piece content is Perishable. Equivalent to Special Handling - Perishables
Fragile	The mail piece content is Fragile Equivalent to Special Handling – Fragile
NonnegotiableDocument	The mail piece contains only Nonnegotiable Document(s).
nonprofit	The mail piece is being mailed from a nonprofit.
MedicalSupplies	The mail piece contains medical supplies
Pharmaceuticals	The mail piece contains pharmaceutical supplies

*Note: Content Keys are subject to change.*

### International

Key	Description
Nonmachinable	The mail piece is Not Machinable.
CrematedRemains	The mail piece contents Cremated Remains
NonnegotiableDocument	The mail piece contains only Nonnegotiable Document(s).
MedicalSupplies	The mail piece contains medical supplies
Pharmaceuticals	The mail piece contains pharmaceutical supplies
Rolls	The mail piece is a Roll.

*Note: Content Keys are subject to change.*

## Price Detail Keys

### Domestic

Key	Description
LA	Live Animal Fee
S	Sunday/Holiday Fee
A	10:30 AM Delivery Fee
NM	Nonmachinable Fee
X	Base Price
F	Fragile Fee

## International

Key	Description
NM	Nonmachinable Fee
X	Base Price

## Price Group Keys

### International

Key	Description
R	Retail Price
B	Commercial Base Price
P	Commercial Plus Price
1	NSA 1 Price
2	NSA 2 Price

*The Price Group Keys matches the SKU definition for Price Types.*

## Sortation Keys

### Domestic

Key	Description
5D	5-Digit
3D	3-Digit
BAS	Basic
CR	Carrier Route
FSS	FSS
FSSC	FSS Scheme Container
FSFC	FSS Facility Container
NDC	NDC
SCF	SCF
TBE	EMM Tray Box
TBF	Full Tray Box
TBH	Half Tray Box
TBT	Flat Tub Tray Box
PST	Presort
MIX	Any mixed mailing

*Note: Sortation Keys will be extended as new sortation's are supported*

## Code Examples

### Domestic Pricing Engine

#### GETSERVICEWITHPRICING

```
ServicesRequest request = new ServicesRequest();

// id card
request.IDCard.CallerID = "14";
request.IDCard.SourceID = "8";
request.IDCard.CustomerType = "008B3";

// mail piece attributes
request.MailPieceAttributes.MailShapeAndSize = MailShapeAndSizeEnum.Package;
request.MailPieceAttributes.ShippingDateTime = new DateTime(2014, 5, 12, 8, 0, 0);

// set ZIP codes
request.MailPieceAttributes.Origin.ZIP = new ZipCode("43338");
request.MailPieceAttributes.Destination.ZIP = new ZipCode("20603");
request.MailPieceAttributes.Destination.IsPOBox = false;

// defaults to Unknown, set as an example
request.MailPieceAttributes.MailEntryPoint = DestinationEntry.EntryValue.Unknown;

// set weight
request.MailPieceAttributes.Weight = new Weight(1,0);

// dimensions, default is rectangular, L = 0, H = 0, W = 0, G = 0
request.MailPieceAttributes.Dimensions.IsRectangular = true;
request.MailPieceAttributes.Dimensions.Length = 12.0M;
request.MailPieceAttributes.Dimensions.Height = 5.0M;
request.MailPieceAttributes.Dimensions.Width = 4.0M;
request.MailPieceAttributes.Dimensions.Girth = 0.0M;

// Content values
request.MailPieceAttributes.MailPieceContents.Clear();
request.MailPieceAttributes.MailPieceContents.Add(new MailPieceContent() { Key = "LiveAnimals" });
request.MailPieceAttributes.MailPieceContents.Add(new MailPieceContent() { Key = "Nonmachinable" });

// exclude sections
request.ExcludeSections.Clear();
request.ExcludeSections.Add(new ResultSection() { Key = ResultSection.SectionType.DimensionalRange });

ServicesWithPricing services_with_pricing = new PostOffice().GetServicesWithPricing(request);
```



### CALCULATE SERVICE PRICE

```
CalculationRequest request = new CalculationRequest();

// selections
request.Selections.MailServiceID = new MailServiceID(2);
request.Selections.DeliveryOptionKey = "XP";
request.Selections.ExtraServices.Add(new ExtraServiceID(101));
request.ExtraServiceParameters.Add(new AdditionalInputValue("dvi", "4000"));

// id card
request.IDCard.CallerID = "14";
request.IDCard.SourceID = "8";
request.IDCard.CustomerType = "008B3";

// mail piece attributes
request.MailPieceAttributes.MailShapeAndSize = MailShapeAndSizeEnum.Package;
request.MailPieceAttributes.ShippingDateTime = new DateTime(2014, 5, 12, 8, 0, 0);

// set ZIP codes
request.MailPieceAttributes.Origin.ZIP = new ZipCode("43338");
request.MailPieceAttributes.Destination.ZIP = new ZipCode("20603");
request.MailPieceAttributes.Destination.IsPOBox = false;
// defaults to Unknown, set as an example
request.MailPieceAttributes.MailEntryPoint = DestinationEntry.EntryValue.Unknown;

// set weight
request.MailPieceAttributes.Weight = new Weight(1,0);

// dimensions, default is rectangular, L = 0, H = 0, W = 0, G = 0
request.MailPieceAttributes.Dimensions.IsRectangular = true;
request.MailPieceAttributes.Dimensions.Length = 12.0M;
request.MailPieceAttributes.Dimensions.Height = 5.0M;
request.MailPieceAttributes.Dimensions.Width = 4.0M;
request.MailPieceAttributes.Dimensions.Girth = 0.0M;

// Content values
request.MailPieceAttributes.MailPieceContents.Clear();
request.MailPieceAttributes.MailPieceContents.Add(new MailPieceContent() { Key = "LiveAnimals" });
request.MailPieceAttributes.MailPieceContents.Add(new MailPieceContent() { Key = "Nonmachinable" });

// exclude sections
request.ExcludeSections.Clear();
request.ExcludeSections.Add(new ResultSection() { Key = ResultSection.SectionType.DimensionalRange });

CalculatedPricing calculated_pricing = new PostOffice().CalculateServicePrice (request);
```

## International Pricing Engine

### GETSERVICEWITHPRICING

```
ServicesRequest request = new ServicesRequest();

// id card
request.IDCard.CallerID = "14";
request.IDCard.SourceID = "8";
request.IDCard.CustomerType = "008B3";

// mail piece attributes
request.MailPieceAttributes.MailShapeAndSize = MailShapeAndSizeEnum.Package;
request.MailPieceAttributes.ShippingDateTime = new DateTime(2014, 5, 12, 8, 0, 0);

// set origin zip code and Country
request.MailPieceAttributes.Origin.PostalCode = "43338";
request.MailPieceAttributes.Destination.CountryID = new CountryID(12000);

// set weight
request.MailPieceAttributes.Weight = new Weight(1,0);

// dimensions, default is rectangular, L = 0, H = 0, W = 0, G = 0
request.MailPieceAttributes.Dimensions.IsRectangular = true;
request.MailPieceAttributes.Dimensions.Length = 12.0M;
request.MailPieceAttributes.Dimensions.Height = 5.0M;
request.MailPieceAttributes.Dimensions.Width = 4.0M;
request.MailPieceAttributes.Dimensions.Girth = 0.0M;

// Content values
request.MailPieceAttributes.MailPieceContents.Clear();
request.MailPieceAttributes.MailPieceContents.Add(new MailPieceContent() { Key = "Nonmachinable" });

// exclude sections
request.ExcludeSections.Clear();
request.ExcludeSections.Add(new ResultSection() { Key = ResultSection.SectionType.DimensionalRange });

ServicesWithPricing services_with_pricing = new PostOffice().GetServicesWithPricing(request);
```

### CALCULATE SERVICE PRICE

```
CalculationRequest request = new CalculationRequest();

// selections
request.Selections.MailServiceID = new MailServiceID(1);
request.Selections.DeliveryOptionKey = "XX";
request.Selections.ExtraServices.Add(new ExtraServiceID(107));
request.ExtraServiceParameters.Add(new AdditionalInputValue("dvi", "4000"));

// id card
request.IDCard.CallerID = "14";
request.IDCard.SourceID = "8";
request.IDCard.CustomerType = "008B3";

// mail piece attributes
request.MailPieceAttributes.MailShapeAndSize = MailShapeAndSizeEnum.Package;
request.MailPieceAttributes.ShippingDateTime = new DateTime(2014, 5, 12, 8, 0, 0);

// set origin zip code and Country
request.MailPieceAttributes.Origin.PostalCode = "43338";
request.MailPieceAttributes.Destination.CountryID = new CountryID(12000);

// set weight
request.MailPieceAttributes.Weight = new Weight(1,0);

// dimensions, default is rectangular, L = 0, H = 0, W = 0, G = 0
request.MailPieceAttributes.Dimensions.IsRectangular = true;
request.MailPieceAttributes.Dimensions.Length = 12.0M;
request.MailPieceAttributes.Dimensions.Height = 5.0M;
request.MailPieceAttributes.Dimensions.Width = 4.0M;
request.MailPieceAttributes.Dimensions.Girth = 0.0M;

// Content values
request.MailPieceAttributes.MailPieceContents.Clear();
request.MailPieceAttributes.MailPieceContents.Add(new MailPieceContent() { Key = "LiveAnimals" });
request.MailPieceAttributes.MailPieceContents.Add(new MailPieceContent() { Key = "Nonmachinable" });

// exclude sections
request.ExcludeSections.Clear();
request.ExcludeSections.Add(new ResultSection() { Key = ResultSection.SectionType.DimensionalRange });

CalculatedPricing calculated_pricing = new PostOffice().CalculateServicePrice (request);
```